211-TP-006-001

Transition Plan
5B to 6A
For the ECS Project

Technical Paper

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Preface

This document describes the 5B to 6A transition plan. The plan contained herein is applicable to all four DAACs, EDC, GSFC, LaRC, and NSIDC. This plan is based on the general approach taken in the previous custom code transitions and the 6A specific information.

The custom code release levels has been finalized to 5B.07 (from) and 6A.04 (to). The transition plan will be updated to accommodate changes, if required. The final version of the transition plan will be presented at the 6A CSR.

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Abstract

The objective of this plan is to provide a road map for the transition from the release 5B to the release 6A of ECS. The document describes the steps that will be used to transition ECS from one version to the next and provides common understanding of the transition approach, both internally and at the DAACs.

Keywords: Transition, Release 5B, Release 6A

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1. Introduction

1.1 Identification

This document provides the transition plan of the ECS system at each of the four DAACs from the release 5B to release 6A.

1.2 Objective

This transition plan is intended to identify the high level processes that will be used to transition ECS from the release 5B to the release 6A. This document is intended to satisfy the need for a common understanding of the ECS custom software transition approach both internally and at the DAACs. This document is not intended to provide the detailed procedures that must be followed to implement the transition. That information will be provided in an Install Instruction document to be provided separately.

1.3 Scope

This plan describes activities for the transition of the ECS system from Release 5B to Release 6A only. This plan describes transition activities at the GSFC, EDC, LaRC, and NSIDC DAACs. The plan describes transition only of ECS custom software components. All schedule related information for this transition is maintained in the ECS Primavera schedule.

1.4 White Paper Organization

This document is organized as follows.

Section 1 describes the document objectives, scope and document organization

Section 2 identifies reference documentation

Section 3 describes the major elements of the release 6A transition - the new systems capabilities that are provided with the release.

Section 4 provides an overview of the transition including assumptions, transition approach.

Section 5 identifies logistical requirements

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2. Related Documentation

2.1 Parent Documents

Parent documents are documents from which the Transition Plan's scope and content are derived.

803-RD-025	Mod 86, The ECS Restructure Proposal for Contract NAS5-60000
423-41-01	ECS Statement of Work
423-41-02	Functional and Performance Requirement Specification for the Earth Observing System Data and Information System (EOSDIS) Core System
ECS 999-TR-951-024R	NAS5-60000, Delivery Schedule

2.2 Applicable Documents

The following documents are referenced within this Transition Plan or are directly applicable, or contain policies or other directive matters that are binding upon the content of this volume.

335-CD-004	ECS COTS Deployment Plan, Volume 4
211-TP-005	Transition Plan 4PX to 4 PY, 4PY to 5A, and 5A to 5B for the ECS Project, Technical Paper

2.3 Information Documents

The following documents, although not referenced herein and/or not directly applicable, do amplify or clarify the information presented in this document. These documents are not binding on the content of this volume.

2.3.1 Information Documents Referenced

None

2.3.2 Information Documents Not Referenced

None

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3. Release Description

This section provides an overview of the capabilities that will be provided in the release 6A transition. This section also provides an overview of the COTS dependency on the release 6A

3.1 Overview

This section identifies capabilities that are included in this transition. Many of these capabilities are defined by tickets and their ticket identifiers are provided where applicable. Some capabilities which were previously identified as intended for 6A have been moved to other releases or deferred indefinitely, and are so identified here for completeness.

3.2 Release 6A Transition Capabilities

Capabilities associated with 6A transition are described in the following sections.

3.2.1 Release 6A Items

The following four tables list Release 6A items. This list is based upon the 6A tickets identified in the Verification DataBase (VDB) on January 23, 2001. The disposition of these tickets with respect to the 6A transition is also noted. Those items in the table whose disposition indicates that they are included in the 6A transition are described further in Section 3.2.2.

The tables include:

Table 3.2.1-1. Ticket Items Moved to 5B

Table 3.2.1-2. 6A Transition Items

Table 3.2.1-3. 6A Ticket Items Deferred to 6B

Table 3.2.1-4. 6A Items Removed

Table 3.2.1-1. Ticket Items Moved to 5B

Ticket ID	Title	Disposition
RM_6A_01	Reprocessing	Incorporated in 5B.07

Table 3.2.1-2. 6A Transition Items

Ticket ID	Title	Disposition
EN_6A_02	V0 Gateway Enhancements (non-science collections; result set attributes)	6A Transition
EN_6A_04	Granule Deletion	6A Transition
RM_6A_04	FTP Pull Subscription	6A Transition
RM_6A_05	Machine-to-Machine Gateway	6A Transition
RM_6A_07	EDC processing DPR Attached to a DAR	6A Transition
RM_6A_08	Landsat 7 Granule Deletion	6A Transition
RM_6A_09	Integration of the EDC Product Distribution System	6A Transition
RS_6A_05	Archive Improvements	6A Transition
RS_6A_06	Ingest of 6A Data Types	6A Transition
N/A	SDSRV Performance – Batch Insert /Update	6A Transition
N/A	SDSRV Performance – Malloc Reduction	6A Transition
N/A	SDSRV Performance – Dirty Reads	6A Transition
N/A	SDSRV Performance – Autoinspect	6A Transition
N/A	D3 Ingest	6A Transition

Table 3.2.1-3. 6A Ticket Items Deferred to 6B

Ticket ID	Title	Disposition
EN_6A_01	Tape Ingest of IGS Browse data and Metadata	Deferred to 6B
RS_6A_02	Compression for Distribution	Deferred to 6B
RS_6A_03	EDOS Backup	Deferred to 6B

Table 3.2.1-4. 6A Ticket Items Removed

Ticket ID	Title	Disposition
RS_6A_01	Additional Media Types (CD-ROM, DLT)	Deleted. Superseded by PDS capabilities identified in RM_5X_01 & RM_6A_09
RS_6A_04	Multi-Host Scheduling	Deleted. Superseded by PDS capabilities identified in RM_5X_01 & RM_6A_09
SL_6A_01	GSFC 24-Hour Workload Performance	Not applicable. Defines performance capabilities only.
SL_6A_02	EDC 24-Hour Workload Performance	Not applicable. Defines performance capabilities only.

3.2.2 Release 6A Transition Items Summary Description

This section provides additional descriptive information on the capabilities that are being provided in the release 6A transition baseline. Other "Release 6A Capabilities" that are not included in this transition event are not described below

Table 3.2.2-1. 6A Transition Items Summary (1 of 5)

Title: V0 Gateway Enhancements (non-science collections; result set attributes)		Description: This enhancement provides two capabilities. In 6A, this enhancement to the V0 Gateway will enable users of the EDG to search and order from several ECS 'non-science' collections, including Algorithm Package (AP), Production History (PH). Additionally, this enhancement will enable users of the EDG to include search results for collections that do not have spatial or temporal attributes defined or have them only optionally defined. Finally, in 6A, the EDG user will have the ability to select the granule level attributes that should be included in an inventory search result.
Ticket ID: EN_6A_02		
Capability ID: 12002DM	Affected Subsystems: GTWAY	

Title: Granule Deletion		Description: The capability allows operators to delete products from the archive on demand via a command line utility. There are a variety of circumstances under which this is needed, such as removing old granules of data that have been superseded by reprocessing, lower level products that are not of interest, or products that have been found to be defective. This capability is intended to complement the automatic, scheduled deletion capability offered by PDPS.
Ticket ID: EN_6A_04		
Capability ID: 12508II	Affected Subsystems: SDSRV, GTWAY, DDIST, PRONG	

Title: FTP Pull Subscription		Description: This capability allows for the creations of subscriptions that request an FTP Pull acquire. The FTP Pull acquire is routine in all other aspects.
Ticket ID: RM_6A_04		
Capability ID: 04648ID	Affected Subsystems: SBSRV	

Table 3.2.2-1. 6A Transition Items Summary (2 of 5)

Title: Machine-to-Machine Gateway		Description: Currently, SIPS receive data they require as input into their processing via standing orders (i.e., subscriptions). The purpose of the Machine-to-Machine Gateway (MTMGW) capability is to support reordering data granules needed for reprocessing at a SIPS, although the capability is general and can be applied to any external element requiring archived data. The MTMGW provides a message-oriented interface to search for data granules, order data granules, and a combined search-and-order interface.
Ticket ID: RM_6A_05		
Capability ID: 15501ID, 15501DT, 15501MS	Affected Subsystems: IDG, SDSRV, MSS, DMS	

Title: EDC processing DPR Attached to a DAR		Description: This is an extension of the ASTER on-demand processing capability in ECS release 5B. The capability provides for attaching standing on-demand processing orders to a DAR. The processing of the on-demand requests and distribution that results from these orders is identical to ECS Release 5B. The capability also provides for expiration of standing on-demand processing orders. Expiration times on the submitted DAR need to be accordingly short.
Ticket ID: RM_6A_07		
Capability ID: 10504MS, 10504CL, 10504PL	Affected Subsystems: PDPS, MSS, CLS	

Title: Landsat 7 Granule Deletion		Description: This capability augments the granule deletion capability defined in ticket EN_6A_04. It provides enhancements to the 5B F1/F2 error handling script to handle physical deletion of Landsat granules.
Ticket ID: RM_6A_08		
Capability ID: 12508II	Affected Subsystems: SDSRV	

Table 3.2.2-1. 6A Transition Items Summary (3 of 5)

Title: Integration of the EDC Product Distribution System		Description: This capability includes enhancements to the capabilities already delivered to implement integration of ECS with the EDC Product Distribution System (PDS). Specifically, this capability makes media distribution options available to servers via the Registry.
Ticket ID: RM_6A_09		
Capability ID: 03504DI	Affected Subsystems: DSS, DMS, CLS, SBSRV, CSS	

Title: Archive Improvements		Description: This ticket involves improvements to the Archive processing of ECS. This represents the single largest change made to the system for this transition. The upgrades consist of the following capabilities: • Data Access and Staging Activity Logging - record the activities associated with archive processing • Parallel AMASS I/O - all the files in a request will be written to/from the archive in parallel • Logical Archive ID - completes the separation of the physical location of data in the archive from the logical location of the data kept in the inventory: • Request Manager - single entry point for all STMGT requests. All other STMGT servers now communicate via sockets rather than DCE. • Separate Read/Write threads - The CopyDaemon and FtpClientDaemon processes have been eliminated. Copies to/from AMASS and Ftp transfers are now performed inline by STMGT servers. Read and write threads can be configured separately.
Ticket ID: RS_6A_05		
Capability ID: 13000ST, 13001ST, 13002ST, 13003ST, 13004ST	Affected Subsystems: STMGT, DDIST, SDSRV	

Table 3.2.2-1. 6A Transition Items Summary (4 of 5)

Title: Ingest of 6A Data Types		Description: This capability provides for the ingest of GLAS and MODAPS PM-1 products via the SIPS interface.
Ticket ID: RS_6A_06		
Capability ID: 10001IN, 10011IN	Affected Subsystems: Ingest, SO	

Title: SDSRV Performance - Batch Insert /Update		Description: Optimize SQL calls from the SDSRV to Sybase by grouping multiple statements into a single batch and sending them to Sybase together.
Ticket ID: N/A		
Capability ID: N/A	Affected Subsystems: SDSRV	

Title: SDSRV Performance - Malloc Reduction		Description: Reduce the number of Malloc operations on search, insert validation, and event notification to SBSRV.
Ticket ID: N/A		
Capability ID: N/A	Affected Subsystems: SDSRV	

Title: SDSRV Performance - Dirty Reads		Description: Allow dirty reads when receiving a large number of insert and search requests at the same time.
Ticket ID: N/A		
Capability ID: N/A	Affected Subsystems: SDSRV	

Table 3.2.2-1. 6A Transition Items Summary (5 of 5)

Title: SDSRV Performance - Autoinspect		Description: Stores metadata information in the SDSRV client so that some requests from the client to the SDSRV can be eliminated.
Ticket ID: N/A		
Capability ID: N/A	Affected Subsystems: SDSRV	

Title: D3 Ingest		Description: Corrects problems with the previously delivered D3 tape ingest that arose from the 6A revisions to STMGT.
Ticket ID: N/A		
Capability ID: N/A	Affected Subsystems: Ingest	

3.3 COTS Product Dependency

The following COTS must be installed prior to or configured as a predecessor to the transition from 5B to 6A.

3.3.1 Sybase ASE 11.9.3

The upgrade to Sybase ASE 11.9.3 is required for release 6A custom code stored procedure changes and to resolve deadlocking and performance issues within the STMGT database (NCR 29667A). Sybase ASE 11.9.3 for the SDSRV and STMGT DB platforms (ACG only) must be installed prior to the transition of custom code from 5B.07 to 6A.04.

Sybase ASE will be upgraded in place at the DAACs prior to the installation of 6A.04. So, the upgrade will occur when DAACs have 5B.07. For this reason 5B.07 along with 6A.04 has been tested with new Sybase. Please refer to the PSR document for Sybase ASE 11.9.3 for ACG for details.

3.3.2 Secure Shell

The Machine to Machine Gateway requires the creation and configuration of Secure Shell IDs and local UNIX LOGINs per the 6A.04 installation instructions for proper functioning. The STMGT database transition script also requires the use of a secure shell login to use the secure shell scp command.

3.3.3 Sybase Replication

The EDC processing DPR Attached to a DAR and Machine-to-Machine Gateway capabilities requires the modification of the MSS database tables used by Sybase Replication. Sybase Replication will have to be transitioned and re-configured as a part of the 5B to 6A transition. Additional Sybase Replication transition planning will have to be done by the DAACs with the SMC to synchronize the 6A.04 versions of each mode with its SMC counterpart. GDS Order Tracking will be unavailable until the DAACs and SMC are synchronized. Please refer to the 6A.04 installation instructions for details.

3.4 Other COTS Products

The following COTS activities are taking place around the same time as 5B to 6A transition at the DAACs. These COTS are not a dependency for 5B to 6A transition and are described here for informational purposes.

3.4.1 Archive Migration

The migration from StorageTek Redwood D3 tape drive to 9940 tape technology will be happening at the same time as the 5B to 6A transition. The COTS SW products AMASS and ACSLS will have to be upgraded to support archive migration, however, these upgrades should not have any impact on 5B to 6A transition.

3.4.2 HP Migration

The migration of COTS SW from HP to Sun machines will be happening at the same time as the 5B to 6A transition. The COTS SW products DBVision, DCE Cell Manager, Remedy, and Tivoli will have to be migrated from HP to Sun machines. Please refer to the HP Migration plan for details.

3.4.3 PDS

The COTS and custom code changes deployed as a part of PDS should not have any impact on 5B to 6A transition.

3.4.4 Bulk Metadata Generation Tool

The following COTS SW products will have to be upgraded to support Bulk Metadata Generation Tool: Jconnect, JAXP, and JRE.

3.4.5 GLIS

The COTS SW product, GLIS Mapper, will have to be upgraded to support GLIS at EDC.

4. 5B to 6A Transition Description

4.1 Transition Strategy

The ECS Transition IPT will coordinate with each DAAC to plan the on-site delivery of a release, including ECS support for installation, checkout, and transition. The transition IPT is comprised of representatives from System Engineering, Development, Test Engineering, and SOS organization.

The DAAC staff, with support from ECS Landover, will install the release, perform integration, and conduct checkout in a test mode. Transition activities will proceed from TS2 mode, then to TS1, and finally into the OPS mode. The DAAC staff will then conduct subsequent regression tests tailored for that DAAC under DAAC specific scenarios. These tests will ensure the stability and performance of the system.

The version of critical COTS products at each of the DAACs will be verified before starting the transition to ensure consistency with the baseline. The DAAC staff will be responsible for making updates to the DAAC unique configurations to avoid any problems during the transition.

4.2 5B to 6A Transition Overview

The 5B-to-6A transition follows the same general approach as the 5A-to-5B transition described in Transition Plan 4PX to 4 PY, 4PY to 5A, and 5A to 5B for the ECS Project (211-TP-005-005).

The use of the ECSAssist allows for the entire installation process to be controlled from a single user terminal; automatically running configuration save and database dump scripts; and error handling (in conjunction with database and mkcfg scripts).

The goal of the 5B-to-6A transition is to accomplish complete transition in 48 hours or less.

The general sequence of events leading up to transition will be:

- Complete the development of the transition scripts
- Integrate and test the transition procedures in the EDF
- Test the transition procedures in the VATC
- Train DAAC personnel in the VATC on transition procedures

4.2.1 Transition Assumptions

1. The transition is from a single baseline, i.e., if the custom software for a given mode is not starting from 5B.07 plus 5B.07_SYS.01A TE, then the appropriate patches will be applied to bring the release to that level before the transition is started.
2. The transition approach is predicated upon a transition to 6A.04. Patches beyond this baseline will be dealt with on a case by case basis.
3. Full System backup and any associated incremental backups are complete and available prior to the start of the transition.
4. Prior to shutdown the system is quiesced (work queues are allowed to run until they are empty).
5. The 48-hour clock starts when system inputs are disabled, and completes when the system is again receiving operational data.
6. Once operations are restored, the use of the other modes is kept to a minimum to allow backlogged processing to catch-up.
7. The DAACs will coordinate the ECS or the Data Providers holding/buffering of L0 and higher products.
8. DAACs will coordinate with other DAACs, Users (including LPGS), etc., to keep them informed of data outage plans and schedules.
9. Landover CM will conduct an informal audit of the critical COTS SW at the DAACs versus the baseline prior to the transition.
10. 5B to 6A Transition will impact Sybase Replication because of changes associated with Attached DPR and Machine to Machine Gateway capabilities. Please refer to section 3.3.3 for additional Sybase Replication impacts.
11. (Only the STMGT subsystem will be deleted in the target mode prior to 6A.04 installation.)
12. Close duplicate volume groups.
13. DBCCs have bee performed against all transitioning databases.
14. The STMGT database transition includes a DbBuild of the STMGT database. This will delete all objects and data in the STMGT database including DAAC unique extensions. Please ensure that the objects and data associated with these DAAC unique extensions are saved before starting the transition, if their retention is desired.

4.3 5B to 6A Transition Approach

The 5B to 6A transition reflects the same basic approach as has been used in the 5A to 5B transition except that the entire mode should not be fully deleted prior to 6A.04 installation. The only subsystem that should be deleted prior to 6A.04 installation is Storage Management (STMGT). Table 4.3-1 identifies the sequence of steps to transition the OPS mode. The estimated times are for the transition in VATC. The estimated times for each DAAC will be different, so the transition approach estimated times will have to be adjusted for each DAAC.

Table 4.3-1. High-Level Sequence of Events for the VATC

Event	Estimated Time	Cumulative time	See Section
1. Pre-transition Preparation	N/A	0 hours	4.3.1
2. Quiesce the System	0 hours	0 hours	4.3.2
3. Shutdown/Backup	2 hours	2 hours	4.3.3
4. Create New Registry Tree for 6A	1 hour	3 hours	4.3.4
5. Install 6A.04	2 hours	5 hours	4.3.5
6. Configure Registry	2 hours	7 hours	4.3.6
7. Convert System Databases	4.5 Hours	11.5 hours	4.3.7
8. Configure STMGT	2 Hours	13.5 hours	4.3.7.5
9. Restart the System	1 hour	14.5 hours	4.3.8
10. ESDTs	.5 Hour	15 hours	4.3.9
11. Checkout Installation and Databases	8 hours	23 hours	4.3.10
12. Re-enable Operational Data Inputs	0 hour	23 hours	4.3.11

The following sections describe the major transition activities for the OPS mode. Subsets of these procedures are used in the TS1 and TS2 modes. These sections describe the general sequence of events. The exact sequence will be documented in the detailed installation/transition instructions provided with the release.

4.3.1 Pre-Transition Preparation

The following activities should be performed prior to the start of transition. This list does not necessarily reflect the actual sequence of events:

a) Receive, untar, and stage drop 6A

b) Perform full backup of mode and databases before the transition.

c) Perform pre-transition installation steps from the installation instructions.

d) Verify duplicate volume groups are closed.

e) Verify versions of critical COTS products.

f) Save objects and data associated with these DAAC unique extensions.

4.3.2 Quiesce the System

System external inputs are suspended. These inputs include user requests as well as ingest operations. For example, EDC personnel coordinate the suspension of Landsat data from the LPS.

The queues should be monitored to determine when they are inactive.

4.3.3 Shutdown/Backup

The system shut down is performed (stopping all of the ECS processes) after the system has been quiesced.

Perform incremental backup of mode and databases after shutdown. The backup of system configuration parameters and databases performed at this stage are complete and consistent across all ECS databases since there is no database update activity occurring.

Remove CopyDaemon and FTPClientDaemon from init.d.

Perform pre-installation steps from the installation instructions.

4.3.4 Create New Registry Tree for 6A

Using the Registry GUI, copy the 5B registry tree into a 6A registry tree. Delete the STMGT servers from the new 6A Registry tree.

4.3.5 Install 6A.04

Prior to installation, a clean-out script is executed to delete (only STMGT elements of) the mode that is being transition. (A detailed list of these items is included in the 6A.04 installation instructions.)

ECSAssist is used to perform the installation of release 6A.

4.3.6 Configure Registry

The Registry must be updated to accommodate the changes associated with 6A.04 in the following ways:

- New Servers (CSS and STMGT): run makeCDSEntries and populate the Registry with those configurations.
- Existing Servers (remainder): patch the Registry using rgypatches.

Additionally, Sybase LOGINs need to be added to the Sybase Registry server and database for new ECS servers.

4.3.7 Convert System Databases

Prior to converting ECS databases to release 6A, Sybase LOGINs need to be added to the Sybase servers and databases for new ECS servers in the STMGT and CSS databases.

The 6A Release contains database verification scripts, as required for databases affected by the 6A transition, that perform the following functions:

- Patch scripts to update the database schema and/or data. These scripts are either run using ECSAssist or from the command line.
- Verify scripts (xxDbVerify) to list the appropriate logical key data values within a database - used to qualitatively compare the database before and after the transition.

Existing 5B Release verification scripts will also be used that perform the following functions:

- Description scripts (DbDesc) to view the structure of the database - used to perform comparisons to a correct 6A.04 transition, tested/checkedout database from the VATC. In addition the scripts are used for database comparisons before and after transition.
- Checksum scripts (DbChecksum) to quantitatively compare the database before and after transition
- Verify scripts (xxDbVerify) to list the appropriate logical key data values within a database - used to qualitatively compare the database before and after the transition.

The estimated disk space needed by each DAAC for transition in OPS mode is:

- EDC 800MB - 1GB
- GSFC 200MB
- LARC 50MB
- NSIDC 10MB

Transition team should execute these scripts at the proper time during the install process. Table 4.3.7-1 shows the databases to be converted in the migration from 5B to 6A.

Table 4.3.7-1. Database Transition scripts between 5B and 6A

Database	Transition 5B to 6A	Notes
DM Database	No transition. Verify using DbDesc and DbChecksum.	
INGEST Database	Transition using ECSAssist database patch script. Verify using DbVerify, DbDesc and DbChecksum.	
IOS Database	No transition. Verify using DbDesc and DbChecksum.	
MSS Database	Transition using ECSAssist database patch script. Verify using DbVerify, DbDesc and DbChecksum.	
PDPS Database	Transition using ECSAssist database patch script. Verify using DbDesc and DbChecksum.	
Registry Database	Transition using ECSAssist database patch script. Verify using DbDesc.	
SDSRV Database	Transition using ECSAssist database patch script. Verify using DbVerify, DbDesc and DbChecksum.	Update search indices for existing global granules
STMGT Database	Transition using non-ECSAssist database patch script. Verify using DbVerify (5A and 6A scripts).	
SBSRV Database	No transition. Verify using DbDesc and DbChecksum.	

The following subsections provide an overview of the database changes associated with the 5B to 6A transition. The detailed database changes can be found in the Database Change Documentation of the 6A PSR document.

4.3.7.1 Ingest subsystem

Changes include columns deleted from the InMediaType table.

4.3.7.2 MSS subsystem

Changes include:

- Columns added or modified in the EcAcOrder table.
- Columns added or modified in the EcAcRequest table.

4.3.7.3 REGISTRY subsystem

Changes include columns modified in the AccessControlList table.

4.3.7.4 SDSRV subsystem

Changes include:

- Removal of DsMdClBoundingRectangle_R and DsMdGrBoundingRectangle_R tables.
- Addition of DsMdDeletedGranules and DsMdStagingTable tables.
- Columns removed in DsGeESDTConfiguredType table.
- Columns added in DsMdAncillaryInput and DsMdGrStringInfoContent tables.
- Triggers removed from DsMdClBoundingRectangle table and triggers added to DsDeDictionaryAttribute table.
- Added 52 added and modified 27 stored procedures.
- Deleted constraints from DsMdGrBoundingRectangle, DsMdGrCircle, and DsMdGrGPolygon tables.
- Indexes deleted from DsMdClBoundingRectangle_R, DsMdAncillaryInput, DsMdGrBoundingRectangle_R, DsMdGrStringInfoContent, DsMdOrbitCalculatedSpatial tables. Indexes added to DsMdAncillaryInput, DsMdDeletedGranules, DsMdGrStringInfoContent, DsMdOrbitCalculatedSpatial and DsMdStagingTable tables.

4.3.7.5 STMGT subsystem

The STMGT database and subsystem has been redesigned.

The following table 4.3.7.5-1 lists the STMGT servers that have changed between 5B and 6A.

Table 4.3.7.5-1. STMGT Server changes between 5B and 6A

Server Name	6A Change	Configuration Needed
EcDsSt4MMServer	Deleted in 6A.	
EcDsSt8MMServer	Deleted in 6A.	
EcDsStArchiveServer		Requires reconfiguration.
EcDsStCacheManagerServer	New to 6A.	Requires initial install / configuration.
EcDsStCDROMServer	Deleted in 6A.	
EcDsStD3Server		Requires reconfiguration.
EcDsStDLTServer	Deleted in 6A.	
EcDsStFtpDisServer	Deleted in 6A.	Replaced with EcDsStFtpServer
EcDsStFtpServer	New to 6A.	Requires initial install / configuration.
EcDsStIngestFtpServer	Deleted in 6A.	Replaced with EcDsStFtpServer.
EcDsStPrintServer	Deleted in 6A.	
EcDsStPullMonitorServer		Linked to EcDsStCacheManagerServer
EcDsStRequestManagerServer	New to 6A.	Requires initial install / configuration.
EcDsStErrorFilesGenerator	New to 6A.	Requires initial install. Not a server so no configuration.
EcDsStmgtGui		Requires reconfiguration.
EcDsStStagingDiskServer		Requires reconfiguration.
EcDsStStagingMonitorServer	Deleted in 6A.	Replaced with EcDsStCacheManagerServer

The following table 4.3.7.5-2 lists the STMGT database tables that have been added in 6A.

Table 4.3.7.5-2. STMGT Database Table Additions to 6A

STMGT Table Name	6A Change	STMGT Table Name	6A Change
DsStArchiveFileRequest	Added in 6A	DsStMediaSet	Added in 6A
DsStArchiveServer	Added in 6A	DsStNotification	Added in 6A
DsStCacheManagerRequest	Added in 6A	DsStPendingDelete	Added in 6A
DsStCancelledRequest	Added in 6A	DsStPendingReservations	Added in 6A
DsStCDROMServer	Added in 6A	DsStPreconfiguredDevice	Added in 6A
DsStCompressionStats	Added in 6A	DsStPreconfiguredStacker	Added in 6A
DsStDependentRequest	Added in 6A	DsStPrintRequest	Added in 6A
DsStFileLien	Added in 6A	DsStRequestMedia	Added in 6A
DsStFileLink	Added in 6A	DsStSDLock	Added in 6A
DsStFtpServer	Added in 6A	DsStServiceThreadConfig	Added in 6A
DsStManagedCacheDir	Added in 6A	DsStStagingDiskFile	Added in 6A
DsStMedia	Added in 6A	DsStStagingDiskLien	Added in 6A
DsStMediaRequest	Added in 6A	DsStStagingDiskRequest	Added in 6A
DsStMediaServer	Added in 6A	DsStStagingDiskServer	Added in 6A
DsStMediaServerContacted	Added in 6A	DsStTempGR	Added in 6A

The following table 4.3.7.5-3 lists the STMGT database tables that have been deleted in 6A.

Table 4.3.7.5-3. STMGT Database Table Deletions between 5B and 6A

STMGT Table Name	6A Change	STMGT Table Name	6A Change
DsStCacheDirectory	Deleted in 6A	DsStSchedule	Deleted in 6A
DsStDeviceTape	Deleted in 6A	DsStServerOperations	Deleted in 6A
DsStDistributedFile	Deleted in 6A	DsStServerStats	Deleted in 6A
DsStFileLocation	Deleted in 6A	DsStStackerGroup	Deleted in 6A
DsStNextId	Deleted in 6A	DsStStgMonRequest	Deleted in 6A
DsStOffsite	Deleted in 6A	DsStTape	Deleted in 6A
DsStRequestTape	Deleted in 6A	DsStTapeGroup	Deleted in 6A
DsStRestore	Deleted in 6A	DsStTapeGroupSet	Deleted in 6A
DsStRestoreHistory	Deleted in 6A		

The following table 4.3.7.5-4 lists the STMGT database tables that have been modified in 6A.

Table 4.3.7.5-4. STMGT Database Table Changes between 5B and 6A

STMGT Table Name	6A Change	STMGT Table Name	6A Change
DsDdFile	Modified in 6A	DsStDevice	Modified in 6A
DsDdGranule	Modified in 6A	DsStErrorAttribute	Modified in 6A
DsDdParameterList	Modified in 6A	DsStErrorText	Modified in 6A
DsDdPriorityThread	Modified in 6A	DsStEventLog	Modified in 6A
DsDdRequest	Modified in 6A	DsStFile	Modified in 6A
DsDdServerGeneric	Modified in 6A	DsStFtpRequest	Modified in 6A
DsStArchiveRequest	Modified in 6A	DsStGenericRequest	Modified in 6A
DsStBackup	Modified in 6A	DsStServerType	Modified in 6A
DsStBackupHistory	Modified in 6A	DsStSlot	Modified in 6A
DsStCache	Modified in 6A	DsStStacker	Modified in 6A
DsStCacheFile	Modified in 6A	DsStStagingDisk	Modified in 6A
DsStConfigParameter	Modified in 6A	DsStVolumeGroup	Modified in 6A
DsStDeleteLogCacheFile	Modified in 6A	EcDbDatabaseVersions	Modified in 6A

4.3.8 Configure STMGT

With the redesign of the STMGT database and subsystem, the STMGT/DDIST subsystems must be reconfigured internally through the STMGT Gui to properly function.

4.3.9 Restart the System

The following servers **MUST** be **WARM STARTED**:

- **EcInPolling** clients
- **EcDsStPullMonitorServer**

The remaining ECS System should be COLD STARTED.

4.3.10 ESDTs

A script will be run during installation to update all currently installed ESDTs from 5B to 6A. No ESDTs need to be updated via the Update ESDT tool.

4.3.11 Checkout the Installation and Databases

4.3.11.1 Goals of Checkout

There are two principal goals of the post-transition checkout activities:

- Confirm the integrity of data holdings that existed prior to the transition, and
- Ensure that basic mission services (defined below) are operational.

4.3.11.2 Checkout Approach

Each DAAC's archives will contain mission data. Therefore, integrity of data acquired before transition must be verified. In addition, data storage services integrity must take priority over data access services.

Assumptions:

- Activity in other modes is restricted during transition checkout in the OPS mode.
- Each DAAC already has checkout procedures for validating the integrity of the existing ECS baseline.
- Each DAAC will develop their own 6A checkout procedures based on their existing procedures and procedures provided with the 6A PSR and the VATC transition exercise.

4.3.11.3 VATC Checkout Sequence

System checkout begins with the verification of the databases. This verification includes pre and post transition database DbDesc, DbChecksum and DbVerify comparisons.

The system checkout continues with the execution of the standard checkout procedures, augmented for the 6A transition. The functional checkout is divided into primary and secondary activities. In case the transition is at risk of exceeding the allocated time, primary activities must occur within the transition window. Secondary activities are desirable, but are not mandatory. These activities will be performed as time allows. The primary checkout procedures are intended to verify that the custom software is installed and configured. Specific functionality and NCR fixes have been tested in the VATC and on-site in TS2 and TS1 modes.

The primary checkout activities include:

1) Verify integrity of primary services on existing data (Search, order, subsetting & distribution) - Existing checkout procedure
2) Verify ingest of new data (ingest and archive) - Existing checkout procedure
3) Verify integrity of primary services on new data (subsetting & distribution) - Existing checkout procedure
4) Verify key functionality added in 6A. These are not full acceptance tests, but rather a cursory check to verify that the installation was correct.– New checkout procedure(s)

The secondary test activities are run at the discretion of the DAAC. These secondary activities include:

1) Verify secondary services (Billing and MOC interfaces) – Existing checkout procedure
2) Verify On-demand production - Existing checkout procedure
3) Verify media distribution services - Existing PDS interface checkout procedure

4) Verify secondary functionality added in 6A. These are not full acceptance tests, but rather a cursory check to verify that the installation was correct - New checkout procedure

The following is a listing of VATC checkout procedures associated with the 6A baseline.

- Add/View/Delete ESDTs (L7, ASTER, System)
- Ingest Attitude Polling wo/DR
- Ingest AST_L1B (D3 Tape)
- Ingest L7CPF (Polling w/DR)
- Ingest L7 LPS (Auto)
- Ingest MOD000 Polling w/DR
- Register PGEs (ACT,ETS)
- Run PGEs (ACT,ETS)
- Insert DAP
- Acquire DAP
- QA Monitor
- Search for L7 Data (Path/Row)
- Pull/Acquire L7 Scenes
- 8mm Acquire
- FTP Browse
- Integrated Browse
- Search for MODIS
- Search for ASTER (Spatial)
- V0GW/MSS Order Tracking
- Enter Subscription on AST_08 for FTP Push
- Distribution for Subscription (AST_08)
- DSS Insert
- DSS/DMS FTP Push
- DSS/DMS FTP Pull
- 6A Capabilities Checkout

4.3.12 Re-enable Operational Data Inputs

At this point, the 6A system has been verified using the standard checkout procedures, which have been augmented for transition as discussed above. All major system functions, most critically the capability to ingest and merge level-0 data, are verified sequentially in all three modes. In addition, DAAC personnel have performed additional verification functions after transition in the test mode.

Re-enabling processing consists of restarting gateways/servers supporting external interfaces (as required) and requesting data providers to resume sending data. Initially, a single granule of each data type is ingested. The transition team will support while DAAC operations personnel verify that the granules are properly archived. At this point, the system is fully restored to operations. In case of breakage, DAAC management decides whether to retain 6A or fall back to 5B. Since these procedures have been practiced and verified several times, the risk at this point is minimal; however, the ability to restore the 5B system will be performed as a part of the transition in test mode.

4.3.13 Post Transition Activities

No post transition activities have been identified at this time. The transition team will apprise the DAAC diligently of any such activity.

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5. Transition Logistics

5.1 Roles and Responsibilities

The following is a description of the skill set recommended for the 5B to 6A transition team.

A lead engineer responsible for managing the overall operation of the transition. The team should have a subsystem expert in each of the following areas: Storage management and distribution; Planning and Processing; Science Data Server; Ingest; Infrastructure, Data Management, and Advertising; and Client. Each subsystem expert should have experience in the installation, configuration, operation and troubleshooting of the subsystem. This involves detailed knowledge of the database operations associated with the subsystem, if applicable, as well as experience with running subsystem testing.

Additionally, the team will require a separate full time Sybase person, responsible for monitoring all changes to system database to ensure database integrity through the transition.

5.2 Transition Schedule

The overall transition schedule for 5B to 6A will be as shown in Figure 5.2-1

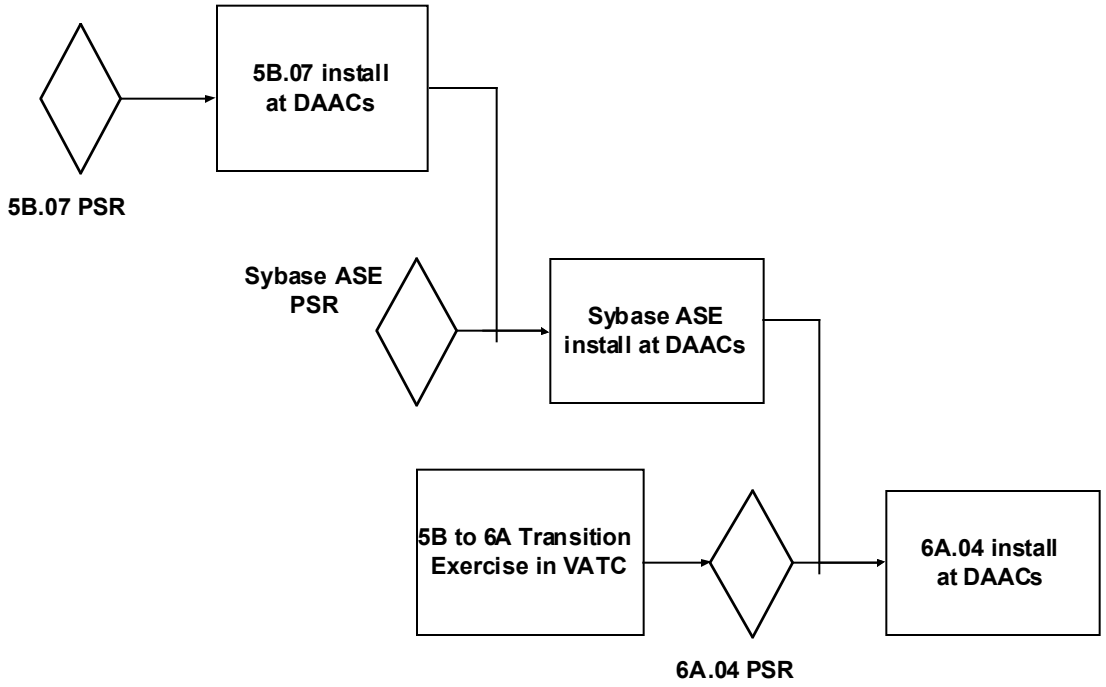

Figure 5.2-1. Overall Transition schedule

The ECS transition IPT in Landover will create a detailed schedule in Primavera for the transition exercise in VATC, however, the transition IPT will put only one activity per DAAC for the transition at the DAAC. These activities will not have any earned value associated with it and will be used only for reference purposes.

The transition IPT will develop the particulars of the transition exercise with DAACs at the Deployment IPT meetings leading to the transition exercise.

5.3 Transition Documentation

Additional 6A transition related information will be produced and is contained in:

- 6A PSR Document - Delivered at 6A PSR.

  This document contains the following:

1. 6A.04 installation instructions - Describes in detail the instructions for installing 6A.04.
2. Tar File Listings – Describes the contents of the tar files that are delivered to the DAACs.
3. NCR Listings - Describes the status of NCRs created during the testing of 6A.
4. Test Procedures - Documents test procedures executed during the verification of 6A.
5. Database Change Documentation - Describes the database differences between 5B.07 and 6A.04.

VATC Transition Checkout Procedures – Incorporated into this document prior to transition testing in the VATC. This is a subset of test procedures intended only to verify that the VATC custom software is properly configured following transition. DAACs should follow their own checkout procedures to verify successful transition.

5.4 Transition Exercise In Landover

The ECS transition IPT in Landover has access to VATC, location for transition exercise, for one month after 6A CSR. The transition IPT will use the first week to get acquainted to VATC and perform testing of the transition procedures. The team will then provide exercise to all the four DAACs in the remaining three weeks. The logistics of the exercise will be worked out individually with the DAACs.

A high level view of the plan for 5B to 6A transition exercise that will be provided at VATC is presented in Table 5.4-1

Table 5.4-1. Plan for the 4-Week Transition Testing and Exercise in the VATC (1 of 4)

Day	Activities	Remarks
	WEEK ONE	
Mon. 9AM 04/02/01	• Review of schedule, team assignments, responsibilities, transition plan and install instructions • Verify prerequisite COTS • Pre-transition steps • Shutdown VATC transition mode • Fully backup VATC transition mode and databases • Create New Registry Tree for 6A • Pre-installation steps • 6A and non-6A capabilities checkout tests	In VATC. Performed by Landover Transition team before DAAC team(s) arrive. In Functionality Lab.
Tue. 9AM 04/03/01	• Install 6A.04 + TEs Database Packages • 6A and non-6A capabilities checkout tests	In VATC. Performed by Landover Transition team before DAAC team(s) arrive. In Functionality Lab.
Wed. 9AM 04/04/01	• Pre-database transition steps • Convert System Databases • Post-database transition steps • 6A and non-6A capabilities checkout tests	In VATC. Performed by ECS Transition team before DAAC team(s) arrive. In Functionality Lab.
Thu. 9AM 04/05/01	• Pre-database transition steps • Convert System Databases • Post-database transition steps • 6A and non-6A capabilities checkout tests	In VATC. Performed by ECS Transition team before DAAC team(s) arrive. In Functionality Lab.
Fri. 9AM 04/06/01	• Rollback VATC transition mode databases to 5B • Fully backup VATC transition mode and databases • 6A and non-6A capabilities checkout tests • Transition status review. Prepare transition packages for DAACs.	In VATC. Performed by ECS Transition team before DAAC team(s) arrive. In Functionality Lab.

Table 5.4-1. Plan for the 4-Week Transition Testing and Exercise in the VATC (2 of 4)

Day	Activities	Remarks
	WEEK TWO	
Mon. 9AM 04/09/01	• Kick-Off Meeting • 6A Overview • Review of transition plan (overview, activities, schedule, assignments/responsibilities) • Review of 6A.04 install instructions • STMGT changes overview	In room 2125. Presented by ECS Transition team to DAAC team(s). Jonathon Crawford
1:00PM	Transition start • Assemble in VATC Lab • Pre-install steps • Create 6A Regristry Tree • Install 6A.04 + TEs code.	In VATC. 1st Transition cycle starts
Tue. 9AM 04/10/01 1PM	• Configure Registry and MkConfigs • Review STMGT Database and transition process. • Convert System Databases (includes DB checks and verifications) • Review and complete STMGT configuration.	In VATC By Landover STMGT team to DAAC installers Transition team.

Wed. 9AM
04/11/01
	• Review STMGT changes:
	  • Operations
	  • Debug log files
	  • Following Insert and Acquire requests
	• Restart system
	• Transition Checkout
	• Demo 6A capabilities, requested
		Jonathon Crawford
		
		1st Transition cycle ends
		
		In VATC

Thu. 9AM
04/12/01
	• Review STMGT :
	  • database schema
	  • DAAC unique extensions
	• Transition Checkout
	• Demo 6A capabilities, as requested.
		By ECS Transition IPT
		
		In VATC

Fri. 9AM 04/13/01	• Transition Checkout • Demo 6A capabilities, as requested.	In VATC

Table 5.4-1. Plan for the 4-Week Transition Testing and Exercise in the VATC (3 of 4)

Day	Activities	Remarks
	WEEK THREE	
Mon. 9AM 04/16/01	• Rollback VATC transition mode and databases to 5B + TEs • Reset init.d • Remove New Registry Tree for 6A	ECS Transition IPT
Tue. 9AM 04/17/01	• Checkout 5B.07 + TEs	ECS Transition IPT
Wed. 9AM 04/18/01	• Checkout 5B.07 + TEs • FTP, stage, untar Formal 6A.04 Turnover	ECS Transition IPT
Thu. 9AM 04/19/01	• Checkout 5B.07 + TEs	ECS Transition IPT
Thu. 9AM 04/19/01	• Shutdown VATC transition mode • Fully backup VATC transition mode and databases • Transition status review. Prepare transition packages for DAACs.	ECS Transition IPT
	WEEK FOUR	
Mon. 9AM 04/23/01 1:00PM	• Kick-Off Meeting • 6A Overview • Review of transition plan (overview, activities, schedule, assignments/responsibilities) • Review of 6A.04 install instructions • STMGT changes overview Transition start • Assemble in VATC Lab • Pre-install steps • Create 6A Regristry Tree • Install 6A.04 + TEs code.	In room TBD. Presented by ECS Transition team to DAAC team(s). _____ In VATC. 2nd Transition cycle starts
Tue. 9AM 04/24/01 1PM	• Configure Registry and MkConfigs • Review STMGT Database and transition process. • Convert System Databases (includes DB checks and verifications) • Review and complete STMGT configuration.	In VATC By Landover STMGT team to DAAC installers Transition team.

Table 5.4-1. Plan for the 4-Week Transition Testing and Exercise in the VATC (4 of 4)

Day	Activities	Remarks

Wed. 9AM
04/25/01
	• Review STMGT changes:
	  • Operations
	  • Debug log files
	  • Following Insert and Acquire requests
	• Restart system
	• Transition Checkout
	• Demo 6A capabilities, requested
		Jonathon Crawford
		
		2nd Transition cycle ends
		
		In VATC

Thu. 9AM
04/26/01
	• Review STMGT :
	  • database schema
	  • DAAC unique extensions
	• Transition Checkout
	• Demo 6A capabilities, as requested.
		By ECS Transition IPT
		
		In VATC

Fri. 9AM 04/27/01	• Transition Checkout • Demo 6A capabilities, as requested. • Lessons Learned • Transition status review	In VATC

5.5 Transition Risk Mitigation

The following is a short list of risks associated to transition and the mitigation strategies for each.

5.5.1 Data loss/corruption: Low

Contingencies: Perform a special full backup of system configuration files and databases prior to transition in each mode. The ability to restore the system from these backups and the current software baseline is demonstrated. There is also a secondary backup consisting of the routine full-system backup plus the daily incremental backups.

5.5.2 Problems encountered preventing a 48 hour transition in OPS mode: Low

Contingencies: Restore ECS system from the contingency backup. Perform real-time assessment of problem to determine if the installation/transition can be re-performed or other action taken to correct the problem, possibly extending beyond the 48-hour period. For GSFC and LaRC, procedures to move buffered data from the Ingest server to other storage are provided.

5.5.3 Problems restoring system from backup: Low

Contingency: Use full-system backup and daily incremental backups to restore the system.

5.5.4 Data loss/corruption in EDOS transfers while Ingest is shut down for transition: Low

Contingency: Provide procedures to manually load data from EDOS supplied tape.

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